

4.6 GREENHOUSE GAS EMISSIONS

The environmental setting, regulatory framework, potential impacts, and mitigation measures concerning greenhouse gas emissions (GHG) are discussed in 2016 PEIR Section 4.6.1 and hereby incorporated by reference. The additions/changes to those analyses necessary to make the 2016 PEIR applicable to the revised Project are presented below. This section addresses the Project's potential impacts concerning GHG emissions generated during both short-term construction and long-term operations.

4.6.1 EXISTING ENVIRONMENTAL SETTING

2016 PEIR

The existing environmental setting concerning greenhouse gas emissions, which is discussed in 2016 PEIR Section 4.6.1 (page 4.6-1), applies to the revised Project and no additions/changes are necessary to make the 2016 PEIR applicable to the revised Project.

ADDITIONS/CHANGES SINCE 2016 PEIR

2016 PEIR Table 4.6-1 provides a summary (in million metric tons [MMT] of carbon dioxide equivalent [CO₂e] emissions) of statewide GHG emissions since the 2016 PEIR (i.e., based on the California Air Resources Board [CARB] Emissions Inventory – 2017 Edition, which includes 2015 data). Additionally, 2016 PEIR Table 4.6-2 provides a summary of estimated Statewide GHG emissions for the years 1990, 2008 and 2012.

4.6.2 REGULATORY FRAMEWORK

2016 PEIR

The regulatory framework concerning greenhouse gas emissions is discussed in 2016 PEIR Section 4.6.2 (page 4.6-6). 2016 PEIR Mitigation Measure GHG-3 uses a 900 MTCO₂e screening threshold for individual development projects. This threshold is based on guidance in the California Air Pollution Control Officers Association's (CAPCOA's) *CEQA & Climate Change* report (January 2008). The GHG emissions associated with 50 single-family dwelling units and 30,000 square feet of office were estimated and were found to be 900 metric tons and 800 metric tons, respectively. The 900 MTCO₂e/year screening threshold was developed by analyzing the capture of 90 percent or more of future discretionary development for residential and commercial projects. The *CEQA & Climate Change* report references an annual 900-MT guideline as a conservative threshold for requiring further analysis and is based on a project's vehicle trips, electricity generation, natural gas consumption/combustion, water usage, and solid waste generation.

The additions/changes necessary to make the 2016 PEIR applicable to the revised Project are presented below.

ADDITIONS/CHANGES SINCE 2016 PEIR

2017 Climate Change Scoping Plan Update

On January 20, 2017, CARB adopted the second update to the Scoping Plan to establish 2030 mid-term targets to maintain and continue reductions. The update's stated purpose was to "incorporate and leverage many existing and ongoing efforts while identifying new policies to progress toward the State's

climate and air quality goals...The policies include the use of lower GHG fuels, efficiency regulations, and the Cap-and-Trade Program which constrains and reduces emissions at covered sources.” Other objectives listed in the 2017 Scoping plan are to provide direct GHG emissions reductions; support climate investment in disadvantaged communities; and, support the Clean Power Plan and other Federal actions.

TABLE 4.6-1: CALIFORNIA GHG EMISSIONS BY SECTOR IN 1990, 2008, 2012, AND 2015

Sector	1990 Emissions in MMT CO ₂ e (% total) ^{1,2}	2008 Emissions in MMT CO ₂ e (% total) ^{2,3}	2012 Emissions in MMT CO ₂ e (% total) ^{2,3}	2015 Emissions in MMT CO ₂ e (% total) ^{2,3}
Sources ⁴				
Agriculture	23.4 (5%)	37.99 (7%)	37.86 (7%)	34.65 (8%)
Commercial	14.4 (3%)	13.37 (3%)	14.20 (3%)	22.17 (5%)
Electricity Generation	110.6 (26%)	120.15 (25%)	95.09 (19%)	84.09 (19%)
High GWP	--	12.87 (2%)	18.41 (3%)	--
Industrial	103.0 (24%)	87.54 (18%)	89.16 (21%)	102.97 (23%)
Recycling and Waste	--	8.09 (1%)	8.49 (2%)	2.99 (1%)
Residential	29.7 (7%)	29.07 (6%)	28.09 (7%)	0.17 (0%)
Transportation	150.7 (35%)	179.02 (37%)	167.38 (38%)	26.93 (6%)
Forestry (Net CO ₂ flux)	-6.5	--	--	--
Not Specified	1.3	--	--	--
TOTAL	426.6	487.10	458.68	443.35
NOTES:				
1. 1990 data was retrieved from the CARB 2007 source.				
2. Percentages may not total 100 due to rounding.				
3. 2008 and 2012 data was retrieved from the CARB 2014a source. 2015 data was retrieved from the CARB 2017 source.				
4. Reported emissions for key sectors. The inventory totals for 2008, 2012, and 2015 did not include Forestry or Not Specified sources.				
5. Forestry includes 6.69 MMT CO ₂ e sink from forests sequestration and a 0.19 MMT CO ₂ e source from forest and range management.				
SOURCE: CARB 2007, 2014a and 2017.				

Senate Bill 32

Signed into law in September 2016, Senate Bill (SB) 32 codifies the 2030 GHG reduction target in Executive Order B-30-15 (40 percent below 1990 levels by 2030). The bill authorizes CARB to adopt an interim GHG emissions level target to be achieved by 2030. CARB also must adopt rules and regulations in an open public process to achieve the maximum, technologically feasible, and cost-effective GHG reductions.

Title 24 Building Energy Efficiency Standards

California’s Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations Title 24, Part 6), was first adopted in 1978 in response to a legislative mandate to reduce California’s energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases GHG emissions. The 2016 Building Energy Efficiency Standards approved on January 19, 2016 went into effect on January 1, 2017.

Title 24 California Green Building Standards Code

The California Green Building Standards Code (California Code of Regulations Title 24, Part 11 code) commonly referred to as the CALGreen Code, is a statewide mandatory construction code developed and adopted by the California Building Standards Commission and the Department of Housing and Community Development. The CALGreen standards require new residential and commercial buildings to comply with mandatory measures under the topics of planning and design, energy efficiency, water efficiency/conservation, material conservation and resource efficiency, and environmental quality. CALGreen also provides voluntary tiers and measures that local governments may adopt that encourage or require additional measures in the five green building topics. The most recent update to the CALGreen Code went into effect January 1, 2017.

City of Encinitas Climate Action Plan

The City adopted its Climate Action Plan (CAP) in January 2018. The CAP contains GHG emissions inventory, projections, goals, reduction measures, and actions to reduce Citywide GHG emissions and achieve the City's 2020 and 2035 reduction targets. The CAP sets ambitious targets to reduce emissions 13 percent below 2012 levels by 2020 and 41 percent below 2012 levels by 2030. The CAP includes numerous measures such as the following:

- Reducing building energy consumption
- Reducing municipal operation energy consumption
- Achieving 100 percent renewable electricity supply in homes and business
- Increasing renewable electricity supply in municipal operations
- Reducing:
 - Citywide potable water consumption
 - Vehicle miles traveled (VMT)
 - On-road fuel use
 - Off-road fuel use
- Increasing:
 - Use of alternative fuels
 - Urban tree cover
- Diverting solid waste

4.6.3 SIGNIFICANCE DETERMINATION THRESHOLDS

Consistent with the 2016 PEIR and in substantial conformance with CEQA Guidelines Appendix G, impacts related to greenhouse gas emissions would be significant if the Project would:

- Generate GHG emissions that may have a significant impact on the environment (see Issue 1); and
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs (see Issue 2).

4.6.4 IMPACTS AND MITIGATION MEASURES

4.6.4 - Issue 1: GHG Emissions

Would the Project generate GHG emissions that may have a significant impact on the environment?

4.6.4 - Issue 2: Policies, Plans, and Regulations Intended to Reduce GHG Emissions

Would the Project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs?

IMPACTS:

2016 PEIR

The potential impacts concerning greenhouse gas emissions consistency are discussed in 2016 PEIR Section 4.6.5 (Issue 1, page 4.6-15). The primary sources of direct and indirect GHG emissions were calculated for 2016 PEIR buildout. The 2016 PEIR emissions reflect the effects of statewide laws intended to reduce GHG emissions. Specifically, GHG emissions associated with each housing site were affected by the Energy Code, CalGreen Code, and statewide regulations on vehicles, fuels, and renewable energy requirements (e.g., Pavley I, LEV III, the Low Carbon Fuel Standard, and the Renewables Portfolio Standard). Additionally, housing sites located in proximity to transit or that proposed onsite mixed-uses would generate fewer vehicle miles traveled (VMT) than similar sites without access to transit or mixed-uses.

2016 PEIR buildout resulted in an increase in GHG emissions from existing conditions. The 2016 PEIR concluded that climate change occurs on a global scale and therefore quantifying the true effect of new GHG emissions caused by a single project or project's net increase in GHG when combined with other activities in the region is cumulatively considerable. Housing Strategy 3 resulted in the greatest overall emissions, but resulted in the lowest per capita emissions. The increase from the 2016 PEIR was not sufficiently informative or a reliable indicator of the significance of the project's GHG emissions. Compliance with regulatory programs intended to reduce GHG emissions was used to determine the significance of the 2016 PEIR emissions. Based on the analysis of regulatory programs, the 2016 PEIR concluded the project would result in significant GHG emissions impacts.

Regarding GHG policy consistency, the 2016 PEIR concluded that the project would not conflict with any State regulation to reduce GHG emissions, the most applicable plan (i.e., the Scoping Plan), nor policies as codified in AB 32 and stated in EO S-3-05 and B-30-15. The 2016 PEIR concluded implementation of the recommended mitigation measures would reduce the future development's GHG emissions to less than significant.

The additions/changes necessary to make the 2016 PEIR applicable to the revised Project are presented below.

REVISED PROJECT

The revised Project would have a significant impact if it would generate GHG emissions that may have a significant effect on the environment. The revised Project does not propose new residential or other development; rather, it provides capacity for future development consistent with State law. The Project proposes to retain the underlying General Plan land use designation for each candidate site, but add an R-30 Overlay that would increase the maximum density to 30 DU/AC. When compared to the adopted

General Plan maximum realistic yield (MRY), the Project's MRY could result in a net increase of as many as 2,303 DU (no change in non-residential land uses would occur).

Future development is expected to result in increased GHG emissions, largely due to increased vehicle miles traveled (VMT), as well as from construction activities, stationary area sources (i.e., natural gas consumption for space and water heating devices, landscape maintenance equipment operations, and use of consumer products), energy consumption, water supply, and solid waste generation. Increased GHG emissions could contribute to global climate change patterns and the adverse global environmental effects thereof. GHG emissions associated with future development include CO₂, N₂O, and CH₄.

Short-Term Construction GHG Emissions

Direct Project-related GHG emissions typically include emissions from construction and operational activities. Future development construction activities would result in direct CO₂, N₂O, and CH₄ emissions from construction equipment operations, as well as materials transport, and construction worker commutes to and from the construction site. Construction activities would consist of grading, demolition, excavation, cut-and-fill, paving, building construction, and application of architectural coatings. Construction activities would occur in incremental phases over time based upon numerous factors, including market demand, and economic and planning considerations. To provide a reference of typical construction-related GHG emissions associated with individual sites, construction emissions were modeled for the four candidate sites (Candidate Sites #9, #10, #3, and #2) with the largest areas, and greatest demolition volumes and MRY; see Table 4.6-2, *Typical Construction Greenhouse Gas Emissions*.

As indicated in Table 4.6-2, short-term construction GHG emissions would range between 24.49 and 31.03 metric tons of carbon dioxide equivalent per year (MTCO₂e/yr). If all four development projects were occurring at the same time, the total amortized construction GHG emissions would be approximately 110.04 MTCO₂e/year. These values are an approximation for informational purposes and can vary widely depending upon the type and intensity of construction occurring at any given time.

TABLE 4.6-2: TYPICAL CONSTRUCTION GREENHOUSE GAS EMISSIONS

Pollutant ¹	Candidate Site ² Potential GHG Emissions (MTCO ₂ e/yr) ³			
	Candidate Site #9 (21.5 AC & 300 DU) ^{4,5}	Candidate Site #10 (16.9 AC & 296 DU)	Candidate Site #3 (7.6 AC & 228 DU)	Candidate Site #2 (6.9 AC & 208 DU)
CO ₂	731.72	762.70	927.34	866.71
CH ₄	0.12	0.12	0.15	0.13
CH ₄ equivalent	2.98	3.02	3.63	3.22
N ₂ O	0.00	0.00	0.00	0.00
N ₂ O equivalent	0.00	0.00	0.00	0.00
Total⁵	734.70	765.72	930.97	869.93
Total (amortized over 30) years)	24.49	25.52	31.03	29.00

Notes:

1. CO₂ = carbon dioxide; CH₄ = methane; N₂O = nitrous oxide
2. Refer to Appendix B, *Candidate Sites Table*, for a listing and description of the candidate sites.
3. Based on California Emissions Estimator Model (CalEEMod) modeling results; refer to Appendix D, *Air Quality and Greenhouse Gas Emissions Data*, for detailed model input/output data.
4. DU = Dwelling Units
5. Carbon dioxide equivalent values calculated using the EPA Website, *Greenhouse Gas Equivalencies Calculator*, <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>, accessed May 7, 2018.
6. Totals may be slightly off due to rounding.

Long-Term Operational GHG Emissions

Appendix D contains the CalEEMod model outputs for mobile source, area source, energy source, solid waste, and water-related GHG emissions during future development operations. Operational GHG estimations are based on energy emissions from natural gas usage, electricity consumption, water demand, wastewater generation, solid waste generation, and automobile emissions. CalEEMod relies upon project-specific land use data to calculate emissions. To provide a reference of typical operational emissions associated with individual sites, construction emissions were modeled for the four candidate sites having the greatest MRY (i.e., Candidate Sites #9, #10, #3, and #2). Specific data for the types and amounts of future development was entered in CalEEMod to determine the GHG emissions anticipated for Candidate Site #9 and full Project buildout (i.e., 2,494 DU assuming development of all candidate sites). Table 4.6-3, *Long-Term Operational Greenhouse Gas Emissions*, shows the long-term GHG emissions associated with future development of the four sites and of all the candidate sites.

AREA SOURCE EMISSIONS

Area source emissions were calculated using CalEEMod and Project-specific land use data. As indicated in Table 4.6-3, Candidate Site #9 (largest site and MRY) and Project buildout would result in 214.77 MTCO₂e/yr and 3,807.55 MTCO₂e/yr of area source GHG emissions, respectively.

TABLE 4.6-3: LONG-TERM OPERATIONAL GREENHOUSE GAS EMISSIONS¹

Source	CO ₂	CH ₄		N ₂ O		Total Metric Tons of CO ₂ e ⁴
	Metric Tons/Year ²	Metric Tons/Year ²	Metric Tons of CO ₂ e ³	Metric Tons/Year ²	Metric Tons of CO ₂ e ³	
Candidate Site #9 (296 DU⁵ and 743 persons forecast population)						
Area Source	213.43	0.01	0.19	0.00	1.15	214.77
Mobile Source	625.10	0.02	0.54	0.01	2.08	627.72
Energy	2,324.84	0.13	3.16	0.00	0.00	2,328.00
Solid Waste	13.82	0.82	20.42	0.00	0.00	34.24
Water Demand	112.00	0.51	12.68	0.01	3.81	128.48
<i>Total Candidate Site #9 Emissions⁴</i>	3,289.19	1.48	36.98	0.02	7.03	3,333.20
<i>Total Candidate Site #9- Related Emissions⁴</i>	3,333.20 MTCO₂e/yr (4.5 per capita)					
Candidate Site #10 (296 DU⁵ and 743 persons forecast population)						
Area Source	213.43	0.01	0.19	0.00	1.15	214.77
Mobile Source	625.10	0.02	0.54	0.01	2.08	627.72
Energy	2,324.84	0.13	3.16	0.00	0.00	2,328.00
Solid Waste	13.82	0.82	20.42	0.00	0.00	34.24
Water Demand	112.00	0.51	12.68	0.01	3.81	128.48
<i>Total Candidate Site #10 Emissions⁴</i>	3,289.19	1.48	36.98	0.02	7.03	3,333.20
<i>Total Candidate Site #10- Related Emissions⁴</i>	3,333.20 MTCO₂e/yr (4.5 per capita)					
Candidate Site #3 (228 DU⁵ and 570 persons forecast population)						
Area Source	164.40	0.01	0.15	0.00	0.88	165.43
Mobile Source	481.50	0.02	0.41	0.01	1.60	483.51
Energy	1,790.75	0.10	2.44	0.00	0.00	1,793.19
Solid Waste	10.64	0.63	15.73	0.00	0.00	26.37
Water Demand	86.27	0.39	9.77	0.01	2.93	98.96
<i>Total Candidate Site #3 Emissions⁴</i>	2,533.57	1.14	28.49	0.02	5.42	2,567.47
<i>Total Candidate Site #3- Related Emissions⁴</i>	2,567.47 MTCO₂e/yr (4.5 per capita)⁶					
Candidate Site #2 (208 DU⁵ and 520 persons forecast population)						
Area Source	149.98	0.01	0.13	0.00	0.80	150.92
Mobile Source	439.26	0.02	0.38	0.00	1.46	441.10
Energy	1,633.67	0.09	2.22	0.00	0.00	1,635.89
Solid Waste	9.71	0.57	14.35	0.00	0.00	24.06
Water Demand	78.70	0.36	8.91	0.01	2.67	90.28
<i>Total Candidate Site #2 Emissions⁴</i>	2,311.32	1.04	25.99	0.02	4.95	2,342.25
<i>Total Candidate Site #2- Related Emissions⁴</i>	2,342.25 MTCO₂e/yr (4.5 per capita)⁶					

TABLE 4.6-3: LONG-TERM OPERATIONAL GREENHOUSE GAS EMISSIONS¹

Source	CO ₂	CH ₄		N ₂ O		Total Metric Tons of CO ₂ e ⁴
	Metric Tons/Year ²	Metric Tons/Year ²	Metric Tons of CO ₂ e ³	Metric Tons/Year ²	Metric Tons of CO ₂ e ³	
Project Buildout (2,494 DU⁵ and 6,250 persons forecast population)						
Area Source	3,686.99	2.41	60.18	0.20	60.37	3,807.55
Mobile Source	5,266.64	0.18	4.51	0.06	17.52	5,288.68
Energy	19,588.31	1.07	26.64	0.00	0.00	19,614.94
Solid Waste	232.88	13.76	344.07	0.00	0.00	576.95
Water Demand	1,114.98	5.34	133.44	0.13	39.90	1,288.31
<i>Total Project Buildout Emissions⁴</i>	29,889.79	22.75	568.84	0.40	117.80	30,576.44
Total Project Buildout- Related Emissions⁴	30,576.44 MTCO₂e/yr (4.9 per capita)⁶					
Notes:						
1. Refer to Appendix D, <i>Air Quality and Greenhouse Gas Emissions Data</i> , for detailed model input/output data.						
2. Emissions calculated using the CalEEMod computer model; refer Appendix D, <i>Air Quality and Greenhouse Gas Emissions Data</i> .						
3. Carbon dioxide equivalent values calculated using the EPA Website, Greenhouse Gas Equivalencies Calculator, https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator , accessed May 7, 2018.						
4. Totals may be slightly off due to rounding.						
5. Refer to Appendix B, <i>Candidate Sites Table</i> , for a listing and description of the candidate sites.						
6. Per capita emissions = total emissions / forecast population; see Table 3-5, <i>Candidate Sites' Forecast Population</i>						

MOBILE SOURCE EMISSIONS

Mobile source GHG emissions were calculated using CalEEMod, default vehicular trip data, and Project-specific land use data. As indicated in Table 4.6-3, vehicular trips associated with Candidate Site #9 (largest site and MRY) and Project buildout would result in 627.72 MTCO₂e/yr and 5,288.68 MTCO₂e/yr of mobile source GHG emissions, respectively.

ENERGY CONSUMPTION EMISSIONS

Energy consumption emissions were calculated using CalEEMod and Project-specific land use data. San Diego Gas & Electric would provide electricity to the future development. As indicated in Table 4.6-3, Candidate Site #9 (largest site and MRY) and Project buildout would result in 2,328.00 MTCO₂e/yr and 19,614.94 MTCO₂e/yr of energy consumption emissions, respectively.

SOLID WASTE EMISSIONS

Solid waste emissions were calculated using CalEEMod and Project-specific land use data. Candidate Site #9 (largest site and MRY) and Project buildout would result in 34.24 MTCO₂e/yr and 576.95 MTCO₂e/yr of GHG emissions associated with solid waste, respectively; see Table 4.6-3.

WATER DEMAND EMISSIONS

San Dieguito Water District (SDWD) and Olivenhain Municipal Water District (OMWD) would be the purveyors of water to the future development. Candidate Site #9 (largest site) and Project buildout water

supply would result in 128.48 MTCO₂e/yr and 1,288.31 MTCO₂e/yr of GHG emissions associated with indirect energy consumption, respectively; see Table 4.6-3.

TOTAL OPERATIONAL EMISSIONS

As indicated in Table 4.6-3, the total GHG emissions from Candidate Site #9 (largest site) long-term operations would be approximately 3,333.20 MTCO₂e/yr, which would exceed the City's 900 MTCO₂e/yr interim screening threshold for individual projects. Since several other candidate sites would involve similar MRY, their operational emissions would similarly exceed significance thresholds. A future development with operational emissions below the interim screening threshold is considered to have a less than significant impact.

CAP REDUCTION STRATEGIES & GENERAL PLAN POLICIES

The City adopted its Climate Action Plan (CAP) in January 2018. In the CAP, the City has committed to a 41 percent reduction below the City's 2012 levels by 2030. The CAP includes numerous measures to reduce GHG emissions such as: reducing building energy consumption, reducing municipal operation energy consumption, achieving 100 percent renewable electricity supply in homes and business, increase renewable electricity supply in municipal operations, reduce citywide potable water consumption, reduce VMT, reduce on-road fuel use, increase use of alternative fuels, reduce off-road fuel use, divert solid waste, and increase urban tree cover. To achieve the GHG reduction target, the CAP primarily utilizes City measures and policy decisions. Although the CAP does not include specific measures, reduction targets, or thresholds for individual development projects, future development would experience reduced GHG emissions through compliance with CAP measures. The EGP Circulation Element and Resource Management Element polices outlined below inherently relate to GHG emissions. These policies promote infill development, higher density developments, improved circulation, VMT reduction strategies, encourage alternative transportation modes, and air quality policies that would further reduce GHG emissions. Compliance with EGP policies outlined below would reduce Project VMT by supporting integrated transportation programs, and helping plan for multi-modal transportation. Additional policies would implement emissions reduction strategies and encourage alternate energy systems.

STATE OF CALIFORNIA REDUCTION STRATEGIES

Additional GHG reductions would occur through compliance with regional and State programs such as the Renewable Portfolio Standard (RPS), California Building Energy Efficiency Standards (Title 24), Pavley Fuel Standards, and electric vehicle planning and infrastructure.

Conclusion

Future development of the candidate sites would occur in incremental phases over time based upon numerous factors, including market demand, and economic and planning considerations, among others. It is anticipated that existing City practices would reduce an individual project's construction GHG emissions to less than significant. However, it is unknown whether candidate site construction activities would occur concurrently, thus resulting in a cumulatively significant impact. Further, project-level variability and uncertainties concerning locations, detailed site plans, construction schedules/duration, equipment requirements, etc., among other factors, are presently unknown, making evaluation of an individual future development's precise GHG emissions too speculative (which CEQA discourages). Thus, because neither the degree of concurrent construction nor an individual future development's precise GHG emissions are known, it cannot be concluded with certainty that an individual project's GHG emissions would be adequately controlled or reduced to below regulatory thresholds. Without such

information, it is not possible to conclude that GHG emissions from an individual candidate site would be less than significant. Moreover, mitigation requiring that the Project reduce its MRY to levels that would result in GHG emissions below the significance thresholds is infeasible, given State law requires that the City accommodate their RHNA fair share of the region's housing needs, which cannot be achieved without the proposed rezoning and the future development. Depending on how development proceeds, GHG emissions associated with future development could exceed thresholds of significance.

The City's significance thresholds would be relied upon to determine the significance level of a future project's impacts associated with GHG emissions. Future development exceeding the City's approach requirements and thresholds of significance must conduct a project-level assessment of GHG emissions impacts (see proposed Mitigation Measure GHG-1 and Mitigation Measure GHG-2). Future development would be required to mitigate GHG emissions to below the City's thresholds of significance. A future development with GHG emissions below City thresholds is considered to have a less than significant impact.

Currently, there are no specific development proposals associated with the revised Project. Therefore, the degree and extent of future Project compliance with the EGP and/or CAP policies and implementation measures is yet unknown, and project-specific details necessary to calculate GHG emission reductions are not presently available. Future development would be subject to compliance with applicable CAP policies, as well as proposed Mitigation Measure GHG-1 and Mitigation Measure GHG-2 to reduce GHG emissions to below City significance thresholds. Nonetheless, the Project's GHG emissions shown in Table 4.6-3 would potentially exceed the City's 900 MTCO₂e/yr interim screening threshold. This exceedance would also potentially affect the City's ability to achieve City's 2030 CAP reduction target of 40 percent below 1990's GHG emissions levels (as also established by SB 32). In addition, the CAP does not account for GHG emissions generated by the revised Project. Mitigation Measure GHG-3 requires the CAP to be updated to mitigate the Project's citywide GHG impacts at the plan level. However, due to the GHG emissions associated with future development and the lack of specificity of future development, impacts associated with GHG emissions on a plan level would remain significant and unavoidable after implementation of mitigation.

GENERAL PLAN POLICIES AND MITIGATION MEASURES:

GENERAL PLAN POLICIES:

- CE Policy 1.15
- CE Policy 3.2
- CE Policy 3.4
- CE Policy 3.5
- CE Policy 3.6
- RME Policy 1.1
- RME Policy 1.10
- RME Policy 5.1
- RME Policy 6.1
- RME Policy 9.4
- RME Policy 13.1
- RME Policy 15.1
- RME Policy 15.2
- RME Policy 15.3

MITIGATION MEASURES:

The mitigation measures concerning greenhouse gas emissions/GHG emissions identified in 2016 PEIR Section 4.6.5 are presented below, inclusive of the additions/changes necessary for the revised Project (indicated by "~~deleted text~~" / "underlined text").

GHG-1: ~~Within six months of adopting the HEU, the City shall provide a revised land use plan to SANDAG to ensure that any revisions to the population and employment projections used in updating the SCS will accurately reflect anticipated growth due to the HEU.¹ Prior to demolition, grading, or building permit approval, and in accordance with City and SDAPCD promulgated methodology protocols, a Greenhouse Gas Emissions Assessment shall be prepared for future developments that would exceed the applicable 900 metric tons of CO₂e interim screening threshold of significance (or those in place at the time of the development application). Future development shall mitigate GHG emissions to below this threshold.~~

GHG-2: To mitigate citywide GHG impacts at the program-level, the City shall update and adopt a qualified climate action plan ~~the City's Climate Action Plan, as needed,~~ within 20 months after the date the HEU becomes effective. The Climate Action Plan shall contain the following components:

1. The City's goals for reducing GHG emissions consistent with the statewide reduction goals outlined in Assembly Bill (AB) 32, Senate Bill (SB) 32 and expressed in Executive Orders S-03-05, and B-30-15;
2. Quantified community and municipal GHG emissions inventories for a baseline year and business as usual emissions ~~through 2050~~ consistent with the California Air Resources Board's 2017 Climate Change Scoping Plan;
3. Identification of emission reduction required to meet GHG emissions targets consistent with the California Air Resources Board's 2017 Climate Change Scoping Plan and related statewide policies and regulations; and
4. GHG reduction measures consisting of project-level implementation measures as well as citywide policies, standards, and programs. The project-level and citywide measures will be designed to achieve emissions reductions that would collectively meet or exceed the established GHG reduction targets in line with statewide goals expressed in AB 32, SB 32 and Executive Order B-30-15.

Upon update of the Climate Action Plan, future development shall be reviewed for consistency with the CAP, and projects may utilize the project implementation checklist to ensure compliance with the City's GHG reduction targets.

GHG-3: ~~Until the adoption of a qualified climate action plan (or in the event a climate action plan is not adopted), a~~ All discretionary projects that exceed the CAPCOA 900 MTCO₂e screening threshold shall prepare a project-specific GHG analysis that identifies an appropriate project-level significance threshold and project-specific mitigation measures. Mitigation measures that may be applied at the future project-level include, but are not limited to those identified in Table A 4.6-10 below Menu of Potential Project-Level GHG Reduction Measures. The project-level analysis shall demonstrate that, with implementation of the applicable mitigation measures ~~identified in Table 4.6 that are applicable to the project,~~ the project will not impede implementation of AB 32 or SB 32 ~~Executive Order B-30-15.~~

¹ The City adopted its Climate Action Plan (CAP) in January 2018, thus, has already complied with this measure.

GHG-3 TABLE A: MENU OF POTENTIAL PROJECT-LEVEL GHG REDUCTION MEASURES	
Feature	Description
Indoor Space Efficiencies	
Heating/Cooling Distribution System	Improve duct insulation 15% over standard requirement (2013 Title 24)
Space Heating/Cooling Equipment	High Efficiency HVAC (equivalent to SEER 15 AFUE or 8.5 HSPF)
Water Heaters	High Efficiency Water Heaters or, Solar Water Heater Systems or, Water Heater with Solar Pre-heat System
Daylighting	Daylighting is the ability of each room within the building to provide outside light during the day reducing the need for artificial lighting during daylight hours. Future development under the HEU, should strive for daylighting in all rooms within the living space through use of windows, solar tubes, skylights, etc.
Artificial Lighting	High Efficiency Lights (50% of in-unit fixtures are high efficacy) High efficacy is defined as 40 lumens/watt for 15 watts or less fixtures; 50 lumens/watt for 15-40 watt fixtures, 60 lumens/watt for fixtures >40watt)
Appliances	All multi-family developments will provide Energy Star ceiling fans, refrigerators, dishwashers, and laundry washing machines. Laundry washing machines include those provided for shared or common use.
Miscellaneous Residential Building Efficiencies	
Cal-Green Tier II	Demonstrate compliance with CalGreen Tier II standards.
Building Placement	North/South alignment of building or other building placement such that the orientation of the buildings optimizes natural heating, cooling, and lighting.
Shading	At least 90% of south-facing glazing will be shaded by vegetation or overhangs at noon on June 21.
Energy Star Homes	EPA Energy Star for Homes (version 3 or above).
Independent Energy Efficiency Calculations	Provide point values based upon energy efficiency modeling of the Project. Note that engineering data will be required documenting the energy efficiency and point values based upon the proven efficiency beyond Title 24 Energy Efficiency Standards.
Residential Renewable Energy Generation	
Photovoltaic	Solar Photovoltaic panels installed on individual homes or in collective neighborhood arrangements such that the total power provided augments 25 percent of the power needs of the project.



GHG-3 TABLE A: MENU OF POTENTIAL PROJECT-LEVEL GHG REDUCTION MEASURES	
Off-site renewable energy project	The applicant may submit a proposal to supply an off-site renewable energy project such as renewable energy retrofits of existing homes that will help implement renewable energy within the City. These off-site renewable energy retrofit project proposals will be determined on a case by case basis and must be accompanied by a detailed plan that documents the quantity of renewable energy the proposal will generate. Point values will be determined based upon the energy generated by the proposal.
Other Renewable Energy Generation	The applicant may have innovative designs or unique site circumstances that allow the project to generate electricity from renewable energy not provided in the table. The ability to supply other renewable energy and the point values allowed will be decided based upon engineering data documenting the ability to generate electricity.
Residential Water Conservation	
Irrigation and Landscaping	
Water Efficient Landscaping	Limit conventional turf to < 50% of required landscape area Limit conventional turf to < 25% of required landscape area No conventional turf (warm season turf to < 50% of required landscape area and/or low water using plants are allowed). Only California Native Plants that requires no irrigation or some supplemental irrigation.
Water Efficient irrigation systems	Weather based irrigation control systems or moisture sensors (demonstrate 20% reduced water use).
Recycled Water	Recycled connections (purple pipe) to irrigation system on site Water Reuse Graywater Reuse System collects Gray water from clothes washers, showers and faucets for irrigation use, Storm water Reuse Systems On-site storm water collection, filtration and reuse systems that provide supplemental irrigation water.
Potable Water	
Over all water reduction calculation	Achieve 25 percent reduction
Vehicle Trip Reduction Measures	
Mixed-Use	Mixes of land uses that complement one another in a way that reduces the need for vehicle trips can greatly reduce GHG emissions.
Residential Near Local Retail (Residential only Projects)	Having residential developments within walking and biking distance of local retail helps to reduce vehicle trips and/or vehicle miles traveled.
Bicycle Infrastructure	
Bicycle Infrastructure	Provide onsite bicycle-path linkages between residential and other land uses or a surrounding bicycle path network.
Renewable Fuel/Alternative Fuel Vehicles (Electric Vehicle Infrastructure)	
Electric Vehicle Recharging	Provide circuit and capacity in garages of residential units for use by an electric vehicle. Charging stations are for on-road electric vehicles legally able to drive on all roadways including Interstate Highways and freeways.

GHG-3 TABLE A: MENU OF POTENTIAL PROJECT-LEVEL GHG REDUCTION MEASURES	
Electric Vehicle Charging Stations	Include 1 electric vehicle charging station for every 50 parking spaces.
Construction and Demolition Debris Diversion Program	
Recycling of Construction/ Demolition Debris	All construction debris will be disposed of at a Construction, Debris, and Inert-material Recovery Facility

LEVEL OF SIGNIFICANCE: Significant Unavoidable Impact

4.1.5 SIGNIFICANT UNAVOIDABLE IMPACTS

Despite compliance with the established regulatory framework and recommended mitigation measures, Project implementation would result in significant and unavoidable impacts concerning the following:

- GHG emissions: The total GHG emissions from Candidate Site #9 (largest site) long-term operations would be approximately 3,333.20 MTCO₂e/yr, which would exceed the City’s 900 MTCO₂e/yr interim screening threshold for individual projects. Since several other candidate sites would involve similar MRY, their operational emissions would similarly exceed significance thresholds.
- Compliance with the City’s CAP: Although the Project would not directly conflict with the policies and reduction measures within the City’s CAP, the potential exceedance of the City’s interim screening threshold would potentially conflict with the City’s ability to achieve the CAP’s GHG emissions reduction targets. Impacts would be significant and unavoidable despite the implementation of Mitigation Measures GHG-1, GHG-2, and GHG-3 at the plan level.
- Cumulative GHG Emissions: Because GHG emission are global in nature, the Project’s potential exceedance of the City’s interim GHG screening threshold would also result in a cumulative impact despite compliance with the established regulatory framework and recommended mitigation measures.

4.1.6 SOURCES CITED

Ascent Environmental Inc., *City of Encinitas Climate Action*, January 2018.

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